

## PATENT COOPERATION TREATY

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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 11 APR 2005

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Applicant's or agent's file reference P33024A/IL/KJO	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/GB 03/05526	International filing date (day/month/year) 16.12.2003	Priority date (day/month/year) 18.12.2002
International Patent Classification (IPC) or both national classification and IPC H04N7/36		
Applicant THE ROBERT GORDON UNIVERSITY		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>		
Date of submission of the demand  19.07.2004	Date of completion of this report  06.04.2005	
Name and mailing address of the International preliminary examining authority:  European Patent Office - Gitschiner Str. 103 D-10958 Berlin Tel. +49 30 25901 - 0 Fax: +49 30 25901 - 840	Authorized Officer  Sampels, M  Telephone No. +49 30 25901-420 	

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**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB 03/05526

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-18 as originally filed

**Claims, Numbers**

1-17 as originally filed

**Drawings, Sheets**

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.
4. The amendments have resulted in the cancellation of:
- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY  
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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	2,8-10,12-15
	No: Claims	1,3-7,11,16,17
Inventive step (IS)	Yes: Claims	10,13-15
	No: Claims	1-9,11,12,16,17
Industrial applicability (IA)	Yes: Claims	1-17
	No: Claims	

2. Citations and explanations

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following documents:

- D1: US-B1-6 192 148 (LIN REHN-LIEH) 20 February 2001 (2001-02-20)  
D2: US 2002/106021 A1 (CHEN CHIN-YUN ET AL) 8 August 2002 (2002-08-08)  
D3: YANG J-F ET AL: "COMPUTATION REDUCTION FOR MOTION SEARCH IN LOW RATE VIDEO CODERS" IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, IEEE INC. NEW YORK, US, vol. 12, no. 10, October 2002 (2002-10), pages 948-951, XP001133426 ISSN: 1051-8215

1. The following preliminary remark on claim 7 is made with regard to the International Preliminary Examination Report.

The expression "estimate of the energy" as used in claim 7 is unclear, and the skilled person does not now how to implement such a feature. Claim 7 does therefore not comply with the requirements of Rule 66.2(a)(ii) PCT.

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1, 3-7, 11, 16, 17 is not new in the sense of Article 33(2) PCT.
- 2.1 The method of claim 1 is not new, because the document D1 discloses a method of encoding video pictures comprising the steps of:
- dividing the picture into regions (D1: column 4, lines 33-34);
  - predicting whether each region requires processing through further steps (D1: column 5, lines 42-48, "path A" and "path B" are such further steps), said predicting step comprising one or more statistical measures (D1: column 4, line 66 - column 5, line 12, the "MAD" is such a statistical measure with one or more threshold values for each region (D1: column 5, lines 24-27).
- 2.2 The following added features of claims 3-7, 11-16, 17 are also disclosed in the

document D1, so that the contents of said claims cannot be regarded as new:

- claims 3, 4: transform processing / discrete cosine transform (D1: column 6, lines 52-63, "discrete cosine transforming");
- claim 5: region is a non-overlapping macroblock (D1: column 4, line 34; claim 1);
- claim 6: macroblock is a sixteen by sixteen matrix of pixels (D1: column 5, line 15, "j=k=16");
- claim 7: estimate of the energy (see paragraph 1) (D1: column 5, line 3, the MAD is an estimate of the energy);
- claim 11: estimate of the distortion, threshold value (D1: column 6, lines 3-7);
- claim 16: computer program (D1: column 6, line 59, "processor implementation");
- claim 17: electronic circuitry (D1: column 6, line 56, "discrete hardware").

3. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 2, 8, 9, 12 does not involve an inventive step in the sense of Article 33(3) PCT.

3.1 The document D1 is regarded as being the closest prior art to the subject-matter of claim 2, and discloses all the features of the parent claim 1 (see paragraph 2.1). The subject-matter of claim 2 therefore differs from this known video encoding method in that the further steps include motion estimation.

The problem to be solved by the present invention may therefore be regarded as how to avoid further processing intensive steps.

The solution proposed in claim 2 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons.

The document D2 treats the above problem being already known from D1, column 6,

lines 58-63 (see paragraph [0009] of D2). The motion estimation as further step is mentioned in paragraph [0010] of D2 as a solution to the problem, so that the skilled person would without the exercise of inventive skills include this solution in the method of claim 1 in order to solve the given problem.

The subject-matter of claim 2 does therefore not involve an inventive step.

- 3.2 The added feature of claim 8, a normalization by the quantizer step, is well-known in the art, and for example mentioned in paragraph [0024] of D2. Its usage is therefore a straight-forward implementation, as it is usually done by the skilled person. It is not based on an inventive step.
- 3.3 The added feature of claim 9, a processing of one or more sub-blocks for the statistical measures, is also known from document D2, see paragraph [0025]. This feature does therefore not contribute subject-matter, which is based on an inventive step.
- 3.4 The usage of previously coded macroblocks in order to derive statistical measures as claimed in claim 11 is well known in the art, and belongs to the standard approaches of the skilled person when avoiding expensive operations in motion search and DCT. It is for example described in document D3, page 950, right column, first paragraph. The subject-matter of claim 11 is therefore not based on an inventive step.
4. The document D1 is regarded as being the closest prior art to the subject-matter of claims 10 and 13, and discloses a method of encoding video pictures as defined in claim 1 (see paragraph 2.1). The added features of claims 10 and 13 are not known from the prior art nor obviously derivable. Hence, the subject-matter of claims 10 and 13 is considered new and based on an inventive step.

Claims 14 and 15 are dependent claims of claim 13, so that they are as well considered new and based on an inventive step.

5. The industrial applicability of a method of encoding video pictures as disclosed in the present application is obvious. It can be used, for example, in a mobile telephone or a PDA.